FlyBy Math™ Alignment
Mathematics Content Standards and Performance Standards (Grade Level Expectations) [PSGLEs]
Fourth Edition – March 2006

Content Standard A: Mathematical Facts, Concepts, Principles, and Theories

Content Strand: Measurement

Measurement Techniques

PSGLE	***FlyBy Math*™ Activities**
The student demonstrates ability to use measurement techniques by **[9] MEA-2** applying indirect methods, such as the Pythagorean Theorem to find missing dimensions in real-world applications (M2.4.4)	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Content Strand: Estimation and Computation

Computation:

PSGLE	***FlyBy Math*™ Activities**
The student accurately solves problems (including real-world situations) by **[9] E&C-4** determining rate by using ratio and proportion (M3.4.5)	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Content Strand: Functions and Relationships

Describing Patterns and Functions:

PSGLE	***FlyBy Math*™ Activities**
The student demonstrates conceptual understanding of functions, patterns, or sequences including those represented in real-world situations by **[9] F&R-1** describing or extending patterns (families of functions: linear quadratic, absolute value) up to the nth term, represented in tables, sequences, graphs, or in problem situations (M4.4.1)	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
[9] F&R-2 generalizing relationships (linear, quadratic, absolute value) using a table of ordered pairs, a graph, or an equation (M4.4.4)	--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.

[8] F&R-3 describing in words how a change in one variable in a formula affects the remaining variables (e.g., how changing the radius affects the volume of a cylinder) (M4.3.2)	--Interpret the slope of a line in the context of a distance-rate-time problem. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
Modeling and Solving Equations and Inequalities:	
PSGLE The student demonstrates algebraic thinking by **[9] F&R-5** modeling (graphically or algebraically) or solving situations (including real-world applications) using systems of linear equations (M4.4.3)	***FlyBy Math™* Activities** --Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.
[9] F&R-7 solving literal equations or formulas for a variable involving one step (e.g., solve for *t* when *d* = *rt*) (M4.4.2)	--Use the distance-rate-time formula to predict and analyze aircraft conflicts.

Content Strand: Statistics and Probability	
Data Display	
PSGLE The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating, making predictions, describing trends; drawing, formulating, or justifying conclusions) by **[9] S&P-1** [designing, collecting **L**], organizing, displaying, or explaining the classification of data in real-world problems (e.g., science or humanities, peers, community, or careers) using information from tables or graphs that display two sets of data [or with technology **L**] (M6.4.1)	***FlyBy Math™* Activities** --Conduct a simulation of each airplane scenario. --Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
Analysis and Central Tendency	
PSGLE The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating, making predictions, describing trends; drawing, formulating, or justifying conclusions) by **[9] S&P-2** using information from a variety of displays or analyzing the validity of statistical conclusions found in the media (M6.4.1)	***FlyBy Math™* Activities** --Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Content Standards B, C, D, and E: Process Skills and Abilities

Content Strand: Problem Solving

PSGLE The student demonstrates an ability to problem solve by	*FlyBy Math*™ Activities
[9] PS-1 selecting, modifying, and applying a variety of problem-solving strategies (e.g., charts, graphing, inductive and deductive reasoning, Venn diagrams, and verifying the results (M7.4.2)	--Use tables, graphs, and equations to solve aircraft conflict problems. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
[9] PS-2 evaluating, interpreting, and justifying solutions to problems by using an alternative strategy (M7.4.3)	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Content Strand: Communication

PSGLE The student communicates his or her mathematical thinking by	*FlyBy Math*™ Activities
[9] PS-3 representing mathematical problems numerically, graphically, and/or symbolically, translating among these alternative representations; or using appropriate vocabulary, symbols, or technology to explain, justify, and defend strategies and solutions (M8.4.1, M8.4.2, & M8.4.3)	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Content Strand: Reasoning

PSGLE The student demonstrates an ability to use logic and reason by	*FlyBy Math*™ Activities
[9] PS-4 following and evaluating an argument, judging its validity using inductive or deductive reasoning and logic; or making and testing conjectures (M9.4.1 & M9.4.2)	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Content Strand: Connections

PSGLE The student demonstrates the ability to apply mathematical skills and processes across the content strands by	*FlyBy Math*™ Activities
[9] PS-5 using real-world contexts such as science, humanities, peers, community, careers, and national issues (M10.4.1 & M10.4.2)	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.